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TONGAN ASTRONOMY AND CALENDAR

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Tongan Astronomy and Calendar

By E. E. V. Collocott

From the exceedingly fragmentary and obscure accounts it appears that the Tongans possess but the vaguest notions of the heavens and of the relations of the sky to stars and sun and moon. They evidently thought of a number of skies, one above the other. One informant expressed the opinion that the number of skies was as great as one hundred. He also suggested a connection between the skies and the great burial vaults at Mua and elsewhere, and it is worthy of note that sky and vault are called by the same name, *langi*. The stars are said to be in the highest sky.

So far as I have been able to discover, the study of astronomy was treated by the Tongans as a branch of navigation. Certain it is that these bold and skilful mariners were keen observers of the heavens and that no small part of the equipment of the old sea captains was the ability, based rather on experience and judgment than on rules, to determine when to shift from one star or constellation and to set the course by another group.

Practically the whole of the available star lore of the Tongans is embraced in sailing directions written by the late Tukuaho, a high chief who was Premier of Tonga about thirty years ago. Tukuaho, fortunately, was an intelligent diarist who carefully wrote down what he heard. His account, copied with permission of his son Tungi, Consort of Her Majesty Queen of Tonga, has been followed in the preparation of this paper.

Few if any living Tongans are able to point to and name more than a very small proportion of the stars, and only in rare instances have I been able to identify the stars named. This rapid decay of the old astronomy is doubtless due to the universal use of the mariner's compass. Star lore was preserved by the old navigators, but there is no longer need to rely upon it.

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DIVISIONS OF THE HEAVENS

The Tongan mariner divided the heavens into three areas or zones, called *fanakenga*, a word which apparently means risings (compare Samoan *fana'e*, rising of tide and moon; Maori, *tchanake*, to move onwards or upwards). These three divisions are named respectively: Fakatonga (southward), the southern zone; Faka-loto-langi (mid-sky), the mid-sky zone; Faka-tokelau (northward), the northern zone. Guide stars were observed astern as well as ahead and the boat was kept in line with them. As the stars or constellations were probably used when at or near their meridians, different constellations were utilized at different seasons of the year. In the following list the stars seem to be arranged in the order in which they rise.

STARS OF THE SOUTHERN ZONE

1. **Houma-utu,** mentioned by Tukuaho as used at a time which corresponds to about March.
2. **Halla-toloa,** four stars (compare Samoan, *Saliatoloa*, the name of a certain star[1]).
3. **Toloa,** four stars.
4. **Lua-a-tangata,** two stars (compare Samoan, *Luatangata*, the name of two stars, Castor and Pollux).
5. **Moa-a-mahe,** one star (compare Samoan, *Moa*, the name of a moon in the wet season).

This completes the southern zone as given by Tukuaho. Of these stars and constellations Toloa is the Southern Cross. Toloa means a wild duck, and Tongan imagination pictures the Cross as a duck whose head is gamma and tail alpha, the wings being beta and delta. The wing delta being dimmer than its fellow is said to have been injured by a stone thrown by the Two Men, Ongo Tangata, alpha and beta Centauri. The stone itself, *Maka*, is epsilon in the Cross.

Although Tongan confirmation is lacking, I think it probable that the Two Men, which are missing from Tukuaho's list, are to be identified with Lua-a-tangata, sometimes called Lua-ae-tangata. In its present form this name would mean man's vomit, but prob-

[1] Pratt, George, Grammar and dictionary of the Samoan language, 4th ed., Samoa, 1911.

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ably an older and more correct form is Lua-tangata, or Lua'i-tangata, two men. Lua, two, is not now found as a common numeral in Tongan, the ordinary form being ua, but *lua* is the numeral two in Samoan, and is found in Tongan in composition. Both Brown[2] and Pratt[3] give Lua-tangata as the Samoan name for Castor and Pollux, with Filo and Mea as the individual names of the two stars, but the presence of Lua-a-tangata in the southern zone and in close proximity to the Southern Cross in the Tongan list is against this identification for Tonga.

Other names for stars in the southern division are Tuutanga-ufi (piece of yam), and Mamangi Halahu, both of which appear to be variants for stars already mentioned, possibly for alpha Centauri, or according to other information for Moa-a-mahe. Tuutanga-ufi is the name used by the people of Ula, the chief sailor of the Tui Kanokupolu. Halahu is the name of a place in the high island of Eua near Tongatabu, where the species of yam called *mamangi* is supposed to flourish with exceptional luxuriance. This star was used in sailing from Fiji to Tonga.

Still another name for Mamangi Halahu is Mau-kuo-mau, an expression meaning got (arrived at) when clear, and used of a person who arrives at a kava party when the beverage has been strained and is clean and ready for drinking. The people of the Haapai chief Tuita are said to use this name for the star.

The dark patch of sky near the left-hand end of the Southern Cross is called Humu, and is brought into close association with the Southern Cross, as for example in the verse, which in the absence of legend is not remarkably intelligible:

Humu moe Toloa	Humu and Toloa
To hoko fuji pea vaoa:	Plant their plantain and overgrown with bush:
Pea lele mai kuli Fiji,	And Fiji dog runs hither,
Tali fanaia, hala he vae, tau he ate.	His reception is being shot, missed in the leg, hit in the liver.

Humu is the name of a fish. The Samoan word *sumu* is the name of fishes of the genus Balistes, and also the name of a clus-

[2] Brown, George, Melanesians and Polynesians, p. 348. London, 1910.
[3] Op. cit.

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821 ter of stars. Samoan legend states that the *sumu* (fish) and *toloa* (duck) were taken up to heaven and became signs.[4] Maafu-lele (running fire) and Maafu-toka (lying, stationary fire) are the names of two bright patches in the southern sky, either of nebulae, or, according to other information, portions of the Milky Way. Baker[5] applies these names to the small and great Magellanic clouds respectively. The Milky Way is called Kaniva (compare Samoan, *Aniva*).

STARS OF THE MID-SKY ZONE

1. **Fanlu,** a single star.
2. **Majiji,**[6] a single star.
3. **Moenga-manu, or Mohenga-manu** (sleeping place of a bird, or animal), a thick cluster of stars.
4. **Mataliki,** the Pleiades—in all probability.
5. **Matamemea,** a single star. This word appears to mean ruddy and is given by Pratt as the Samoan name of Mars.
6. **Tuinga-lama,** three stars. This word, meaning a torch of candlenuts, appears to be Samoan rather than Tongan and is given both by Brown[7] and Pratt[8] as the Samoan name for an unidentified star.
7. **Faipa,** three stars.
8. **Alotolu,** three stars. Alotolu means a three-oared boat, or three in a boat, and is the name of a portion of the constellation of Orion. Tongan tradition asserts that Alotolu is the boat in which Hina went with her father, Maungakoloa, and her mother, Tamatangikai, in search of Hina's pet shark, which had escaped when the sea overflowed the pool where it was kept. Hina and her parents, as well as her two brothers, Ngatai and Fanua, were turned into various rocks and beaches in Vavau. Closely associated with Alotolu in Tonga is **Tuinga-ika** (string of fish), which is missing from Tukuaho's list. Both Tuinga-ika and Alotolu are parts of Orion, and it is possible that Tuinga-lama, which seems to be better known in Samoa than in Tonga, is identical with Tuinga-ika.

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9. **Tolonga-Maui** (throwing of Maui ?), one star.
10. **Takulua-Aloft and Takulua-Tua-fanua,** two large stars which rise one in front (aloñ) of Akana and the other at the back (tua) of the island.

[4] Pratt, op. cit. See the word *sumu*.

[5] Baker, Rev. S. W., An English and Tongan and Tongan and English vocabulary, Auckland, 1897. [13]

[6] Throughout this paper I have adhered to the practice of writing *j* before *i*. In earlier Tongan the syllable *ji* had much the sound of English *tchi*, but is now indistinguishable from *si*. [104]

[7] Brown, op. cit., p. 349.

[8] Pratt, op. cit.

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The Akana mentioned is probably the Aana of Samoa. Pratt and Brown give Taulualofi and Tauluatuafanua as Samoan star names. Brown[9] suggests that the names mean the pair Lofi and Tuafanua, or that Lofi and Tuafanua were joined together as the Siamese twins. If this is the correct explanation there is doubtless some forgotten legend connected with the names. The Tongan forms suggest the possibility that the names are of topographical origin and refer to stars which rise respectively at the front and at the back of Aana, though in that case two pairs of stars, or two double stars rather than two single stars, would seem to be indicated. 821

STARS OF THE NORTHERN ZONE

1. **Ao-o-Uvea,** a circular constellation. The word means circlet of Uvea, and the cluster is said to owe its name to the fact that the mariner does not use it as a guide until it is standing like a circlet around Uvea. [502]
2. **Kapakau-o-Tafahi,** eight stars. The name means wing of Tafahi (Boscawen Island). This cluster is said to be like a hen brooding over Tafahi with wings appearing on either side. It has been identified as Coma Berenices, but the identification is doubtful, as the honor is shared with the constellation Fatanalua.
3. **Tupa-a-Valtupu,** three stars. This group is named after the crab (*tupa*), one star being called the Big Claw (Vae Lahi), and another the Little Claw (Vae Jii).
4. **Fatanalua,** eight stars. The word seems to mean double bier. The eight stars are divided into two groups of four, called respectively Upper Bier (Fata Olunga) and Lower Bier (Fata Lalo). This constellation also has been identified with Coma Berenices.
5. **Tuula-lupe,** five stars. The word means pigeon roost. Sailing directions, which are rather obscure, state that this constellation must not be used to steer by till it stands straight like a pigeon perch, which consists of a vertical upright with crosspiece at the top. In Samoa the same word is used as a star name. [502]
6. **Kaukupenga,** twelve stars. This constellation is said to stand round like a net (*kupenga*), possibly the pigeon snaring net. It may be the Corona Borealis, though there is no Tongan identification to support this supposition.
7. **Telengeho,** a single large star (compare Samoan, *Telengese*).
8. **Takelo,** two stars, so named from their yellow or ruddy tinge (*kelo*). Pratt gives *taelo* as the Samoan name of a moon in the wet season.

[9] Brown, op. cit., p. 349.

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The stars listed for the three sky zones are arranged in the order given in Tukuaho's diary. I am indebted to Mr. E. W. Gifford for the following sailing directions given by the chief Maatu of Keppel Island, which lies far north of the main part of the Tongan group:

> In sailing south to Tongatabu, steer by Haliatoloa, Lua-ae-tangata, and Faipa.
>
> In sailing north to Keppel Island, steer by Faipa, Aloua (two-oared boat), Telengehe, Fatanalua, Tupa, Tuutangaufi, and Vai-utu-ki-tua (water carried outside) of which a variant is Utufi-ki-tua (carried outside).

It will be noted that most of the stars named by Maatu are included among those mentioned on the preceding pages but that Maatu's list does not follow the same order as the list arranged by Tukuaho. No living Tongan known to me is able to point out the various stars named, but I am of the opinion that for a conjectural reconstruction of the system the order given by Tukuaho can be followed with confidence.

THE SUN

When the sun sets it is said by the Tongans to go down to Lolofonua, the Underworld, the abode of the Maui, whence it issues at its rising, but I have been able to find no explanation of the sun's daily journey nor of its path between the Tropics. If native accounts existed of these phenomena they are entirely or almost forgotten. One informant said he had heard a story of the reason of the sun's setting but had forgotten it.

It is said that someone named Loau, who lived long before the Loau of Haamea in Tongatabu so famous in Tongan tradition, traveled to Samoa and thence to Tonga in search of the sun. But beyond this bare mention I have heard nothing of this personage and his quest.

A Tongan tradition connects Jinilau with the sun—Jinilau being said to be the son of the sun and a mortal woman. Throughout Polynesia there is an association of Jinilau with Hina, and the Tongan tradition states that Hina was married to Jinilau. Clouds on the eastern horizon at sunrise are said to be placed there to ensure privacy for the sun and Jinilau as they talk together.

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THE MOON

There seems great probability that the theory which connects Hina with the moon, *mahina*, is correct. Tongan tradition associates Hina with the shark. A myth from Eueiki in Tonga asserts that Hina was an exceedingly beautiful girl, the daughter of the chief of Eueiki, and that one day while sporting in the breakers she was swallowed by a Samoan deity, who assumed the shape of a shark for the purpose. Possibly this myth is to be referred to the monthly disappearances of the moon.

The association of Hina with the Maui is also common throughout Polynesia. In Tongan myth a maiden Sinailele, living in Fiji, becomes pregnant by stepping over the bones of Maui Atalanga and Maui Kijikiji, and thereby becomes the mother of Tui Motuliki.[10] Sinailele seems to be a Fijian modification of Hina, and the connection of Hina with the Maui may be a connection of the moon with the Underworld, parallel with the association of the sun with the Underworld.

There is a place at Matoto in Vavau which affords a fine outlook over the ocean and is famous as a spot at which to see the moon rise. This locality is named Mata-mahina-hopoanga, or Matanga-mahina-hopo, place of seeing moon rise. When parties repair thither they must make no noise and kindle no fire till the moon is fully above the horizon. As the moon appears over the ocean as though she were floating up from the depths of the sea, she is said to *kakau mai*, swim hither. When she is clear of the horizon and the onlookers are free of the tabu on noise it seems to be not unusual to raise cries of joy. The information I have been able to obtain about this custom is very scanty, but it is possible that details, if one could obtain them, would be full of interest.

There is a couplet referring to this moon-viewing site.

Fine taumelo hake ki Matoto	Harbinger woman goes up to Matoto
Ko ene fie mamata he mahina hopo.	Because she wants to see the moon rise.

The moon, also the sun, in eclipse is termed by the Tongans *mate*, dead. In ancient times this phenomenon seems to have

[10] Folk-Lore, vol. 32, No. 1, pp. 53 ff., 1921.

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821 attracted little attention. Likewise among modern Tongans eclipses do not excite very great awe, but there is some disposition to regard them as ominous, especially an eclipse of the moon in which the shadowed planet has a ruddy tinge. It is not unlikely that this modern attribution of ominousness has arisen from certain expressions in the Bible, especially as interpreted by those sects that emphatically teach the existence of occult relations between such phenomena and human history.

THE TONGAN CALENDAR

LONG PERIODS OF TIME

805 The word *tau*, used in modern Tonga as the equivalent of the English year, means also the yam crop, and although it is possible that before the advent of Europeans this word signified the annual circuit of the seasons, there can be little doubt that primarily it refers to the yam.

There seems to have been no system whereby numbers of years were counted. The practice, still prevalent enough, was to reckon long periods by comparison of notable incidents, of generation with generation or of man with man. As a countryman may say that a certain event happened the year that the red cow died, or just before the drought or the flood, so the Tongan reckoned by such things as [551] war, festival, drought, and hurricane. It is not uncommon to find personal names commemorating the fact that their bearers entered life contemporaneously with the occurrence of some outstanding event. The Tongan of today, like the European who employs such methods, proceeds to translate his date when located into calendar years and months.

The life of man is frequently used as a standard. In answer to the question when such a thing happened one may get such replies as "I was a child running about at the time." "I was a young man." "My mother told him that it occurred just before I was born." In the same way people speak of their ages. One may say that he is of the same generation (*toutangata*) as another man; a very aged man may be spoken of as having outlived all his con-

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temporaries. A number of elderly people and even some children do not know their ages, but the proportion is probably less in this generation than in the last. The habit of counting years is becoming common. Government requirements of registration and the practice of entering the ages of children in school rolls lead naturally to this result.

The life of the individual is divided into a number of periods which give a rough indication of age. The child is first *huhu* (at the breast), then *mavae* (weaned). This latter word however does not give a very close approximation to a child's age as understood by a European, as many children continue to suck the breast, though eating other food, for two years or more. Other words in the stages of life are, *tateka* (crawling about), *totuu* (commencing to stand), *akoako hacle* (learning to walk), *hacle* (walking), *lele holo* (running about), *fangafanga* (hair cut short on the top but left at the sides)—a custom that has largely fallen into disuse.

From childhood on different words are used of men and women. A general word for boy is *tamajii*. As he grows up he is *talavou jii* (little, young, young man), *talavou* (young man), *tangata* (man)—a word of very wide application—*fatu tangata* (middle-aged man), *fatu tangata motua* (late middle-aged man), *vaivai* (old, literally weak), *vcetolu* (three-legged, that is supporting himself on his staff), *auau* (going down, failing). So too a man may be described as *motua aupito* (very old), or *unu* (shedding skin).

Words descriptive of the growing girl and woman are *taahine* (general word for girl), *huhu tutuu* (breast forming), *finemui jii* (little, young, young woman), *fcfine* (general word for woman), *fatu fcfine* (middle-aged woman), and so on as for men with the necessary alterations of *tangata* (man) to *fcfine* (woman).

A man is frequently called *motua* and a woman *finemotua*. These words properly indicate a man who has begotten and a woman who has borne children.

By the use of such words it is possible to locate comparatively recent events; for example, a man may say that such a war was fought when his father was a young man. More remote occurrences may be reckoned by generations. For example, "It is

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805 three generations since this happened" or "It occurred when my father's father was a child."

A general word for long ago, ancient times, is *onoaho*, as *onoponi* is used for recent time, the present age. There are several expressions for remote antiquity, as, *Hau o Momo* (when Momo was king), *Hau o Tuitatui* (when Tuitatui was king), *Hau o Muni Matamahae* (when Muni of the Torn Eye was king), *Hau o Motuku Veevalu* (when Motuku Veevalu, literally Eight-legged, was king). There are of course other words meaning uncountable, long enduring, which may be used to express the same idea of remotest antiquity.

SEASONS AND MONTHS

The Tongan year is said to have begun at about the same time as the Christian year, though no satisfactory explanation is given. [171] Gill[11] states that the Mangaians begin their year about the middle of December, the point of departure being marked by the appearance of the Pleiades on the eastern horizon just after sunset. This or some similar astronomical phenomenon may possibly have determined the beginning of the Tongan year.

[821] [132] The two broad divisions of the year, in one of which the days and nights are cooler than in the other, were recognized and used to classify seasons. Close observation of the habits of plants and 805 of animals provided a basis for more exact division. The times 824 when certain trees cast their leaves, flowered, or bore fruit were 825 utilized in making the calendar, as were also the periods when par- 805 ticular fish appeared. The greatest importance attaches to the 244 various stages of the growth of the yam. A large part of the nomenclature of the moons is based on seasonal changes observed in this plant.

805 The normal year consisted of twelve months, though some years had thirteen. The nomenclature is largely agricultural, but there seems no reason to doubt the statement that the names were applied to the moons. The months and the commonly received explanations of their names are as follows:

[113] [11] Gill, W. W., Myths and songs from the South Pacific, p. 317, London, 1876.

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1. **Liha-mua:** Early nit, December-January. This is the time when the first planted yams are forming roots. At this stage of growth little protuberances or roughnesses, like nits, appear on the heads of the roots. The name is also explained in a more general way. Many fish spawn at this time, and many trees show tiny fruits. A word for little things is nitlike, *ngalihaliha*, and the month is said to be so called because many things are "nitlike" at this period. 221 805 244 [136] [137]

2. **Liha-mui:** Late nit. January-February. All the yams, late as well as early, show the little nitlike protuberances.

3. **Vai-mua:** Early rain (water). February-March. The first rainy month. [132]

4. **Vai-mui:** Late rain. March-April. The second rainy month. [132]

5. **Fakaafu-moui:** Putting forth living shoots. April-May. This is a time of vigorous growth with healthy suckers and shoots appearing on many plants. The word *afu* applies especially to the suckers of the *hiapo* (paper mulberry), but is also used more widely. The *fuji* (plantain) and *fau* (*Hibiscus tiliaceus*) should now be planted.

6. **Fakaafu-mate:** Dead, dying, suckers or shoots. May-June. Suckers are now not so vigorous, and dead tops of the yams appear.

7. **Hilinga-kelekele:** Laying earth, that is, either laying of earth or laying on earth. June-July. This is the month in which to start digging the yams. One explanation of the meaning of the name is that the harvested yams with earth adhering to them were laid on platforms constructed in suitable places, as under a tree or in a house, and that the name owes its origin to the fact that the adhering earth was laid down with the yams. Another explanation is that the yams were taken up and laid on the surface of the ground. The two interpretations are not inconsistent, for yams laid on a platform might still be said to be put on the ground. The name itself does not convey a precise meaning. 805 244 251 221

8. **Hilinga-moaa:** Laying *moaa*. July-August. This is the time to dig and store the remaining yams. These late yams are the biggest, and a portion of the garden is reserved for the special sorts of yam which grow to the largest size. The literal meaning of *moaa* in this place is doubtful. An explanation connects the word with *umea* (clay), and is to the effect that the big yams grow down into the clay which adheres to the roots when dug: but this interpretation is more than doubtful.

9. **Aoao:** August-September. The literal meaning of *Aoao* is obscure, a derivation for the name has been suggested which connects it with *hau-aoa*, used of rotting yam seed. The time for cutting yams for seed is now over, and it is said that if seed be cut in this month a considerable proportion of it will rot. 805 244 221

10. **Fuufuunekinanga:** Full leafiness. September-October. The yams, which have been planted about June and July, are now in full leaf.

11. **Ulu-enga:** Yellow head. October-November. This name is referred both to sea and land. Several sorts of fish are at a stage in their 805 136 221

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growth when their heads are yellow under the scales. Ashore this is a time of scarcity, whence the proverb, *Ka ai ha ofa tatali ki Uluenga.* If there is any kindness (gift) wait till Uluenga, when presents of food will be most useful. When yams are dug a small piece of the root is sometimes thrown back into the hole. These pieces grow into yams, which though small are deep in the ground on account of the manner of their planting. During the time of scarcity people search for these little yams, and in bending down to throw the soil out of the deep holes they are likely to make themselves yellow-headed.

221 805 244

12. **Tanu-manga:** Throwing soil on branch, fork. November-December. A growing yam is likely to project slightly above the ground, and frequently a small yam grows down from the same stem thus making a branch or fork on the head of the root. In this month if the head of a yam appears forked (*manga*), the gardener banks it over with soil (*tanu*).

With Tanumanga the year normally ends. If, however, observation of the yam and other plants and of fishes at the next new moon fails to discover the appearances proper to the month with which the year begins, Lihamua, another month is intercalated.

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13. **Ooa-ki-fangongo:** Using a coconut-shell as basket. *Ooa* is said to be a reduplicated form of *oa*, one sort of basket; *fangongo* is an empty coconut-shell cut open and used as a receptacle for small things. This is a time of scarcity, and the idea is that one needs but a small receptacle in which to place his food.

NIGHTS OF THE MONTH

805 With the Tongans, as with other Polynesians, it is habitual to count by nights rather than by days. Where the English speaker says "five days after" the Tongan says "five nights after." An intelligent Tongan suggests as a reason that his people treat the hours of daylight and of the succeeding darkness as one day and that in reckoning the closing portion of the day is considered.

The division of the month was based on the phases of the moon, and the days or nights were counted within the month, several of the nights having special names. Expressed perhaps in a better way, there were special names for the moon in several of her phases. The fisherman has strong reasons for close observance 805 226 of the moon, as some days are *aho ika*, fish days, favorable for the catching of certain sorts of fish. These fish days evidently vary with different localities and for different species of fish.

805 821 It is asserted that the appearance of the moon in a looking-

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glass, probably a pool of water in former days, indicates the night of the month. The theory is that when the moon is thus viewed she does not appear single, but behind the image of the moon itself there is a reflection or shadow, giving the image of another moon. Sometimes one, sometimes more of these reflections appear, and according to the number of moons showing in the glass one may know what night of the month it is. Nights are named *faka-ua*, two-wise, *faka-tolu*, three-wise, and so on. On a two-wise night two moons appear in the glass, on a three-wise night three moons, and four-wise, five-wise, six-wise, seven-wise, and eight-wise nights appear to be recognized.

When the moon is looked at in a glass these subsidiary images certainly do appear, in varying number, but the appearance is affected by the quality of the glass and by the way in which it is held. Personal trial has yielded very unsatisfactory results, and Tongans who explain this method of reckoning nights do not seem very sure of its application.

In listing the Tongan nights it is impossible to be quite certain of some details, as excellent informants vary slightly in their accounts. One man, for instance, begins his count of the nights from that called *aho oe toutai*, sailor's day; another regards this as the second night of the month. It is not certain how far the "two-wise, three-wise" system of reckoning extended, either in an ascending series of the waxing moon or in a descending series of the waning moon, but it does not seem to have gone beyond eight or possibly nine. The words *aho*, day, or *po*, night, are freely interchangeable. But while there may be errors in detail the main outlines of the system are clear.

Po ae faahikehe: Night of the spirit. This is a night on which the moon is not visible to men; she is still below the horizon, and seen only by the gods. It is said that the horizon glows for a considerable time after sunset on this day. This is the shining of the yet invisible moon. This night may be considered either as the first of the month or as a spirit's night lying loose between months and left out of the count of human nights. I am unable to determine whether or not it should be counted as the first, but on the whole think it best to start with the next night.

1. **Po ae toutai:** Sailor's night. The moon is still invisible to landsmen but seen by those who are at sea.

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2. **Faka-ua:** Two-wise, and so on to the eighth, *faka-valu*, to which a special name seems to have been applied, *punifanga* (shutting the circle formed by the brow and top of the head). The moon is now shaped like the front of the top of the human face and head. This name may have been applied to the following night also.

10. **Fuofua-vale:** Incomplete—the moon almost full.

11. **Mahina katoa:** All moon, that is, full moon.

12. **Fe-aho-aki:** Caught between two days. When the sun has set the moon has already appeared above the horizon, and when the sun rises on the following morning the moon is still in the sky.

13. **Uluaki ahoia:** First "caught by daylight," "out all night." If one stays up all night and is still up at sunrise he is said to be *ahoia*, "day-ed." So on this night the moon is still up when the sun rises.

Then follow second, third, and so on *ahoia* nights, when the moon is caught in the sky by the rising sun, but the interval between sunset and moonrise gradually gets longer, till at last there is a night when the moon does not appear at all but is *mate*, dead. This night is the end of the month and immediately precedes Po ae faahikehe, night of the spirit.

In counting the waning moons a nomenclature is employed similar to that used in reckoning the waxing moon, but in the reverse direction, *faka-valu*, eight-wise, *faka-fitu*, seven-wise, on down to *faka-ua*, two-wise which immediately precedes the night on which the moon is dead. This nomenclature seems to run parallel with the reckoning of the *ahoia* nights for a portion of the waning moon.

[262] Ma-tofi, which means sliced *ma* (a food made by burying and fermenting breadfruit or plantain), is a name applied to the waning moon on the second *ahoia* night, when it presents the appearance of a large lump of this food with a piece sliced off the side. A European parallel would be a cheese with a piece cut off one side.

Kalipa is used to describe the moon when rather less than half and on the few succeeding nights, starting from about the time when the waning moon is *faka-valu*, eight-wise.

One informant applied the words Kalipa, Ma-tofi, and Fuofua-vale (noted above of the waxing and almost full moon) indifferently to the waxing and waning moon.

Lekeleka-mate, almost dead (?), is applied to the moon as it appears on the few nights shortly before its disappearance at the end of the month.

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DIVISIONS OF NIGHT AND DAY

Following are a number of terms descriptive of various periods 805
of the night and day, forming a more or less rough and ready time system. Starting from sunset and advancing through the night and the succeeding day these terms are:

1. **To ae laa:** Sunset.
2. **Fefolilongaki:** Recognizing. There is still sufficient light for people to recognize each other at a considerable distance.
3. **Uuli-kelekele:** Dark earth. It is now a little darker, and the face of the earth is begining to appear black.
4. **Femauaki ae pouli:** Dark obtaining everywhere. The darkness is enveloping all things.
5. **Tu mama:** Lamp lighting. Doubt is expressed as to whether or not [373] this is ancient, though the Tongans employed artificial lighting before the coming of Europeans.
6. **Ha ae otu kaveinga:** The ranks of the constellations appear.
7. **Kau pouli:** Darkness bodied forth, black night.
8. **Tuua-po:** Night standing (?). Frequently with the addition of *malie*, exact, Tuua-po malie. The middle of the night.
9. **Vale po:** Night of no account (literally); indicates the same period of far-advanced night as Tuua-pomalie. This term relates perhaps primarily to dances and games, indicating that the night is so far spent that the main part of the amusements is over and the chief spectators and actors gone. What remains is of no account, the unconsidered amusement of such as choose to prolong the entertainment. This explanation though offered by a very intelligent Tongan seems very doubtful.
10. **Mafuli ae Kaniva:** The Milky Way turned. The Milky Way has turned so far that it is pointing to the east where the sun will soon rise.
11. **Moa mua:** First cock. Earliest cock crow, probably considerably earlier in Tonga than in higher latitudes.
12. **Tataki aho:** Leading in day.
13. **Fakaholo-fononga or Fakahala-fononga:** Making journey advance. This indicates the appearance of a star which is known to rise not long before dawn. Its appearance cheers travelers with the promise of approaching day.
14. **Moa mui:** Later cock (crow).
15. **Fetuu Aho:** Day star. The name is applied to Venus during her early morning appearances more than to any other star, but may indicate any bright star whose rising closely precedes the dawn.
16. **Ata a puaka:** Shadow of pig. This phrase is applied to much the [231] same time as that marked by the appearance of the day star. The

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805 [231] idea is said to be that this is the time when the pigs wake and begin to move about; there is not yet enough light for them to be distinctly visible, but they appear merely as dark blots or shadows.

17. **Ata:** Shadow, slight appearance. This is explained in the same way as the preceding, but with the reference to men instead of to pigs.

18. **Mafoa ae ata:** Breaking of the shade; possibly, crack of the upper air. Dawn.

19. **Hengihengi:** Very early morning.

20. **Maa ae aho:** The day clear. Just about sunrise.

21. **Hopo ae laa:** Sunrise.

22. **Uhu,** a general term for the early morning.

23. **Pongipongi,** a general term for about sunrise to midday, like the English morning.

[231] 24. **Fangai-lupe:** Feeding pigeon. Time for those in charge of the tame pigeons to feed the birds. For Samoa this is about 9 a. m.[11]; for Tonga Baker[12] gives it as about 9 till 11 a. m.

25. **Pale ki hahake:** Slanting to east. The morning hours before the sun has come to the meridian.

26. **Tuutonu malie ae laa:** The sun standing straight, that is, midday. Another expression for this is Hoata or Hoata malie.

27. **Pale ki hihifo:** Slanting to west. The sun has now passed the meridian. Afternoon.

28. **Efiafi:** Afternoon. A general word, usually applied to late afternoon and frequently to the earlier hours of darkness, like the English evening.

29. **Hopo ae moa:** The fowl jumping, that is, the fowl going to roost. Although clocks have become fairly common, yet the Tongans frequently express the time of day by the position of the sun. An expression for "now," "this present time," is *fcituu laa ni*, this place of the sun. Frequently in answer to a question as to when a thing did or will occur, the Tongan points to the sky and says, the sun was, or will be, there.

Other Tongan expressions are:

Apongipongi, tomorrow; Anoiha, the day after tomorrow; Moitolu, three days hence; Aneafi, yesterday; Ancheafi, the day before yesterday; Tua-aneheafi, the day before the day before yesterday.

MISCELLANEOUS TERMS

821 1. **Tapukitea,** Venus when she appears in the evening (compare Samoan *Tapuitea*, the evening star).

[11] Pratt, op. cit. See the word *fagailupe:* Brown, op. cit., p. 348.

[12] Baker, S. W., An English and Tongan and Tongan and English Vocabulary, Auckland, 1897. See the word *fagailupe*.

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2. **Fetuu-aho:** Day star, or morning star. This is frequently applied to Venus in her early morning appearances, but the name seems equally applicable to any bright star whose rising closely precedes the dawn (compare Samoan *Fetuao*, the morning star). 821

3. **Fetuu fuka:** Flag or flagged star, a comet.

4. **Fetuu ejiafi:** Fire-bringing star, shooting star.

5. **Uha:** Rain. Belongs to great deities, the Tangaloa, who reside in the sky. This is the reason why prayers for rain were made to the goddess Tafakula, a descendant of the Tangaloa, who passed human supplications on to headquarters. [782] [776]

6. **Umata:** Rainbow. The rainbow belongs to a deity. It is tabu to point to the rainbow, and should one disregard this prohibition the limb with which he points will swell with elephantiasis or perhaps as with elephantiasis. [776] [781] [753]

7. **Mofuike:** Earthquake—is caused by Maui digging too energetically in his garden in the Underworld. Another account, which is much more doubtful, relates that Maui, getting drowsy, lets the earth totter. Whatever the cause the remedy is simple: make a great noise and beat on the ground to recall the god to a sense of his misdemeanor. 823 776

8. **Ahiohio:** Whirlwind. A blind god, who rushes about not knowing whither he is going nor what damage he is doing. A small whirlwind is a small god and a large whirlwind a great deity. In dealing with this blind god the right procedure is to induce him to go elsewhere by making a noise so that he may know that he is interfering with men. 821 776

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[For further information on Tongan ideas about astronomy, see Category 502.]